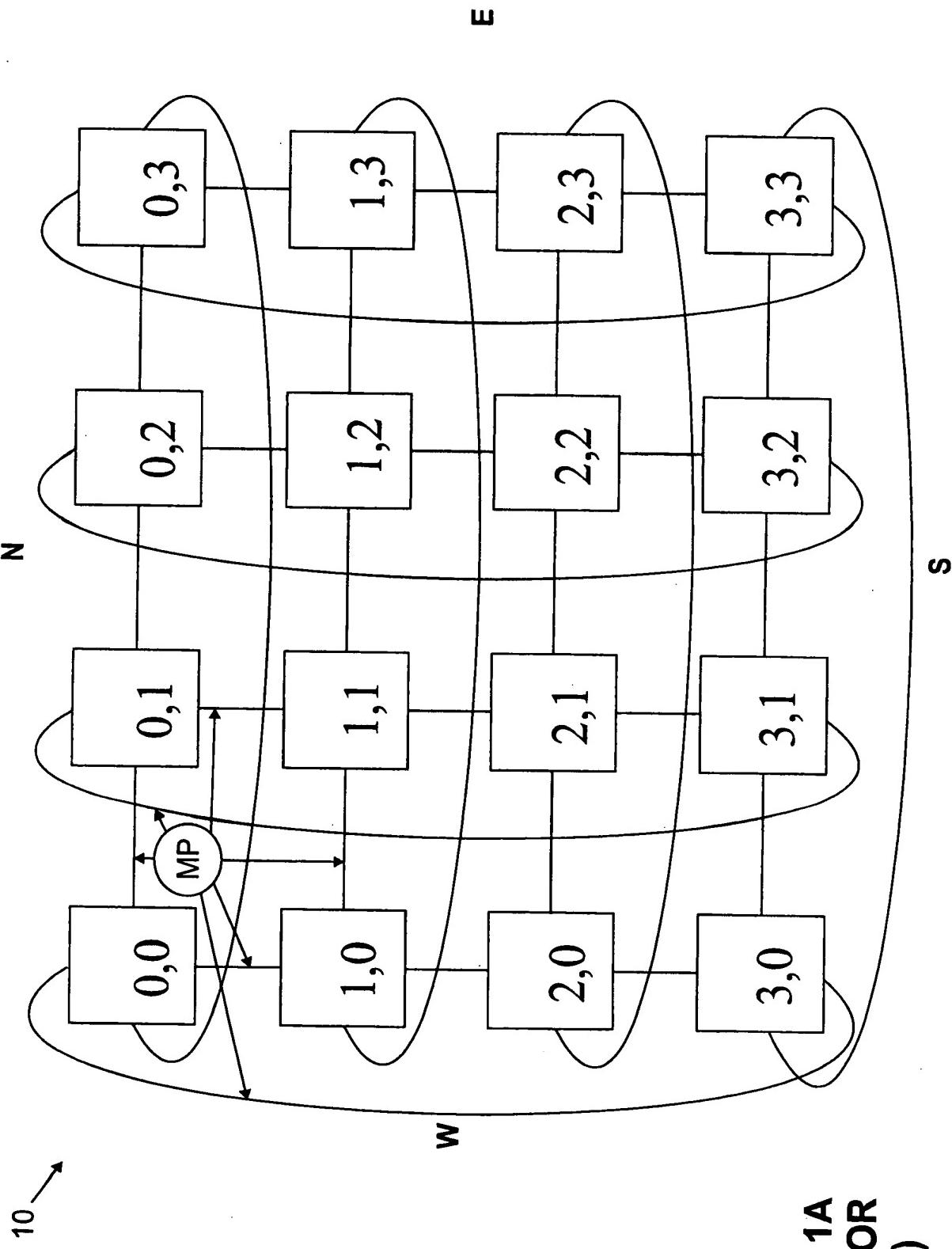


4X4 TORUS

FIG. 1A
(PRIOR
ART)

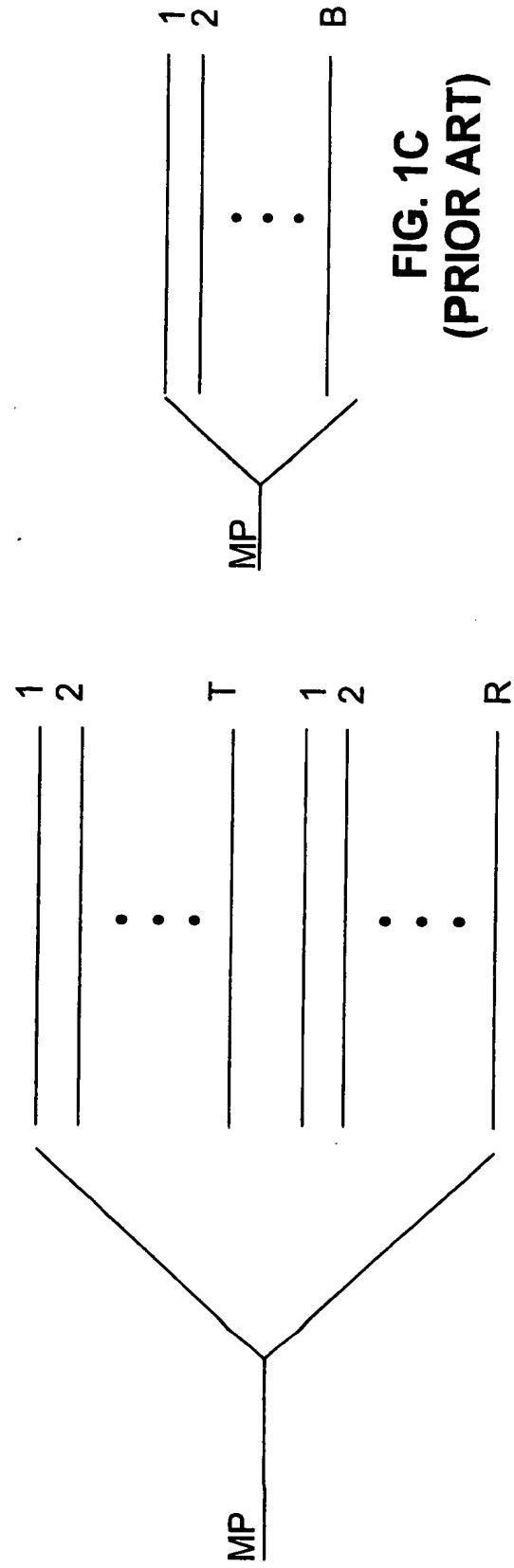
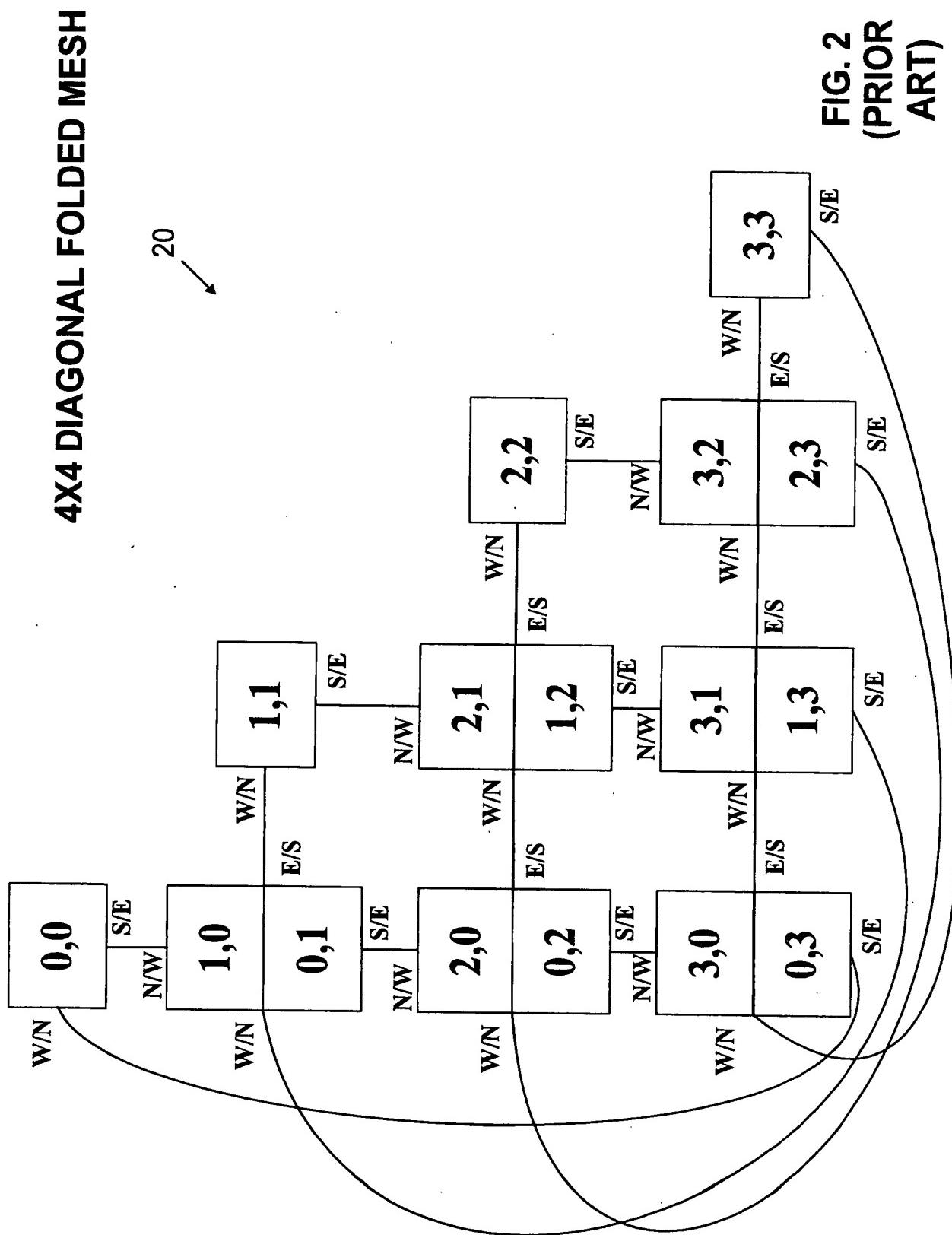


FIG. 1B
(PRIOR ART)

FIG. 1C
(PRIOR ART)

W/N S/E
N/W



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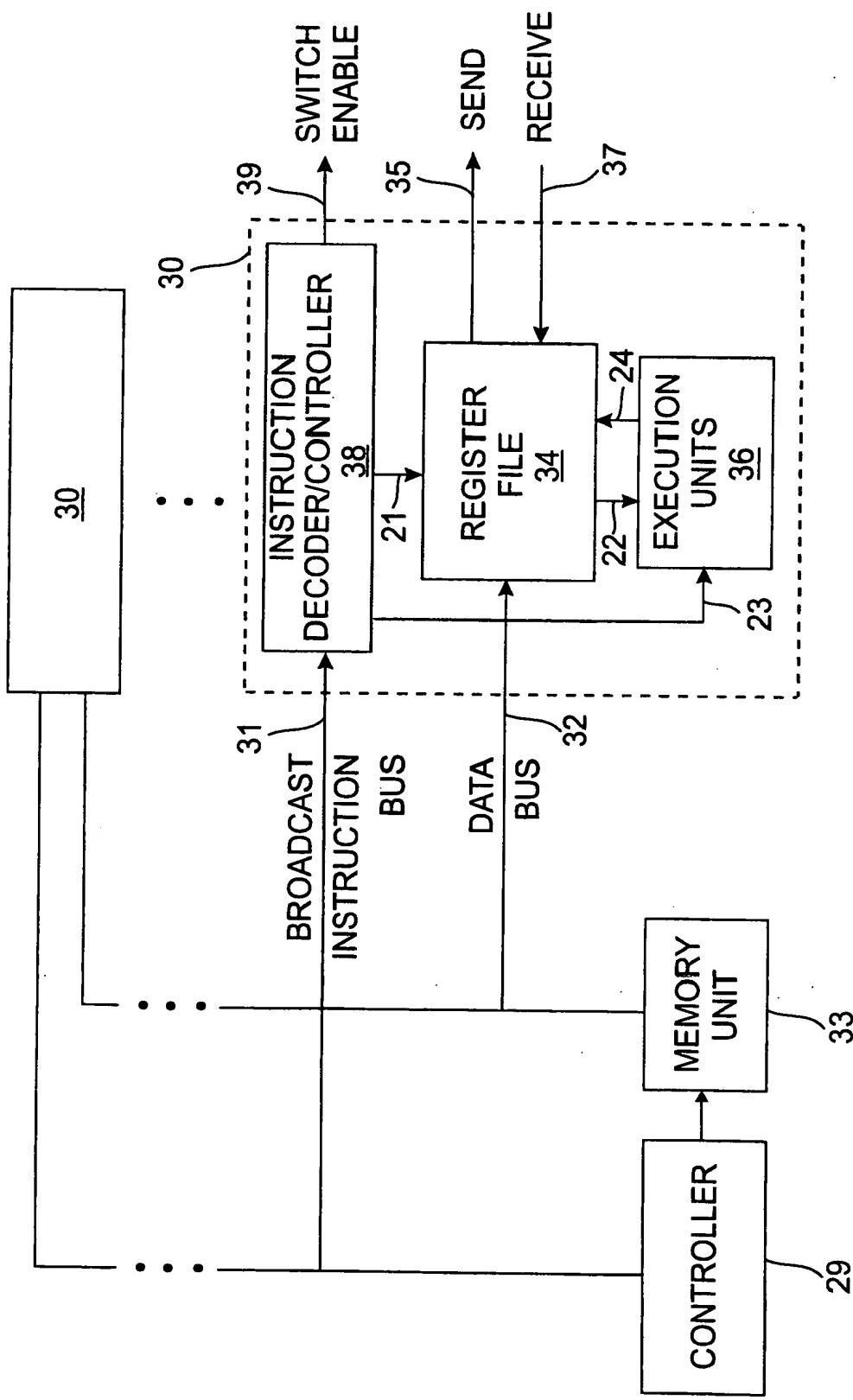
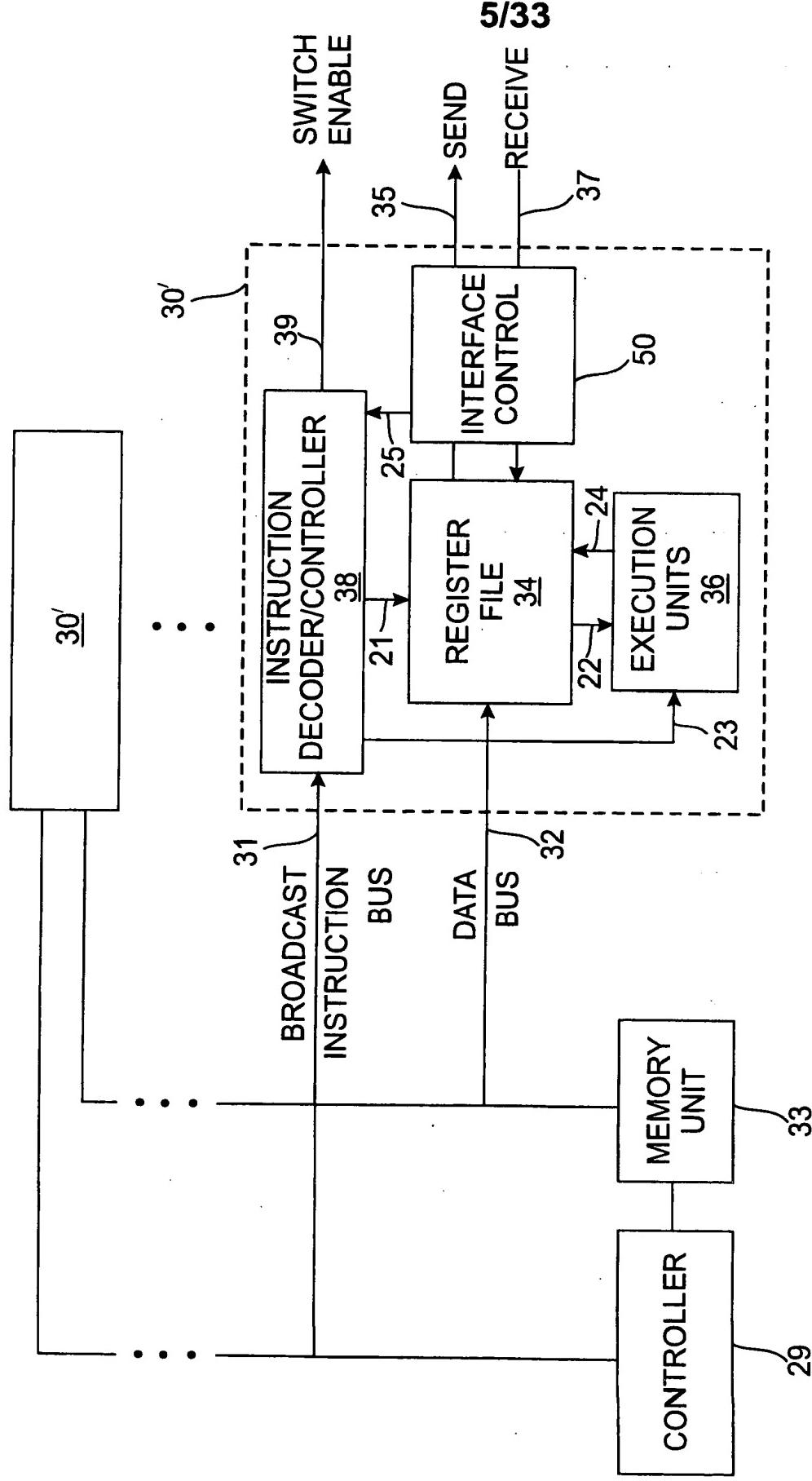


FIG. 3A

FIG. 3B

30' 30 31 32 33 34 35 36 37 38 39 21 22 23 24 25 29 50



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FIG. 4

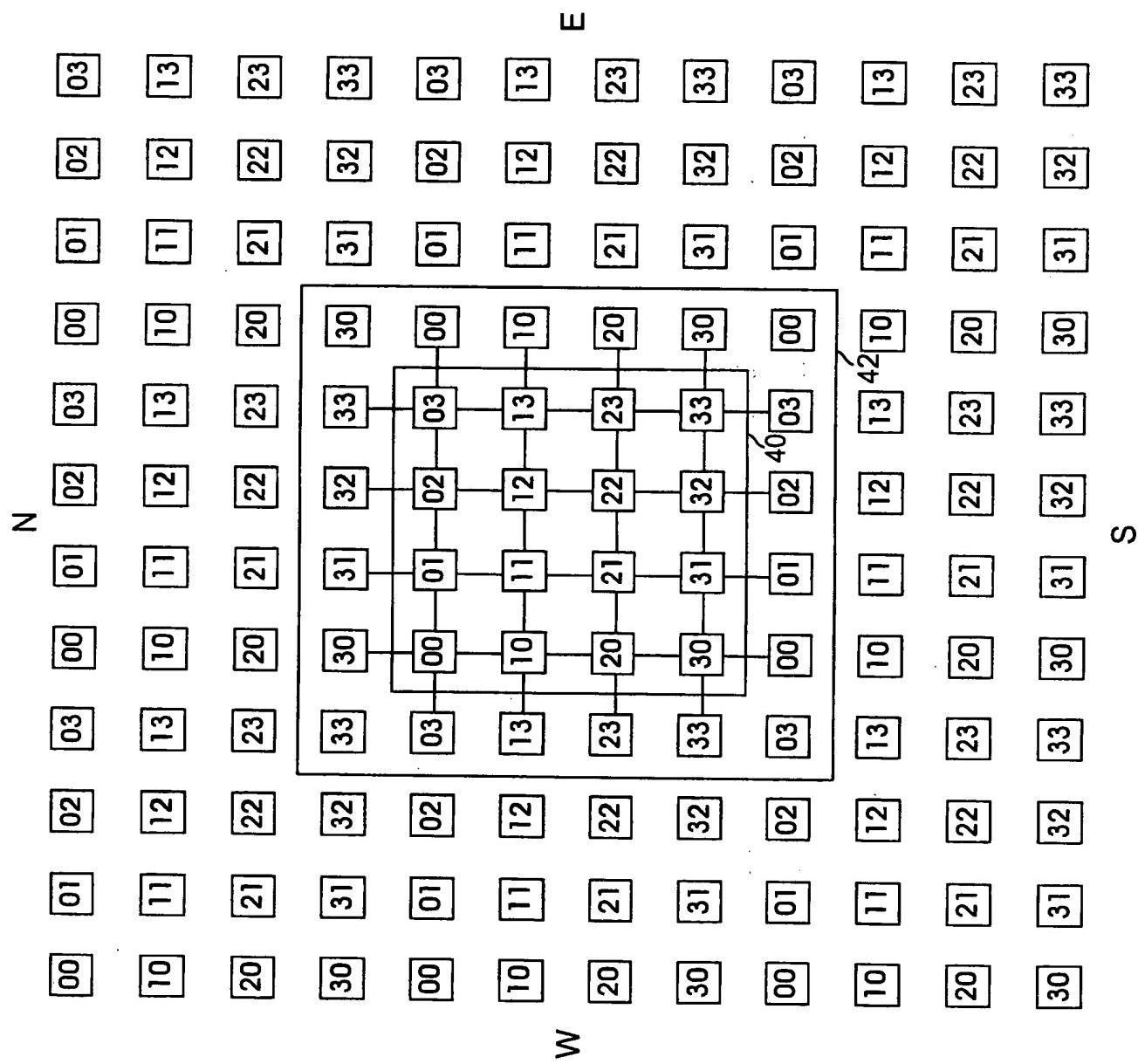


FIG. 5A

00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33
00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33
00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33
00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33
00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33
00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33
00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33

FIG. 5B

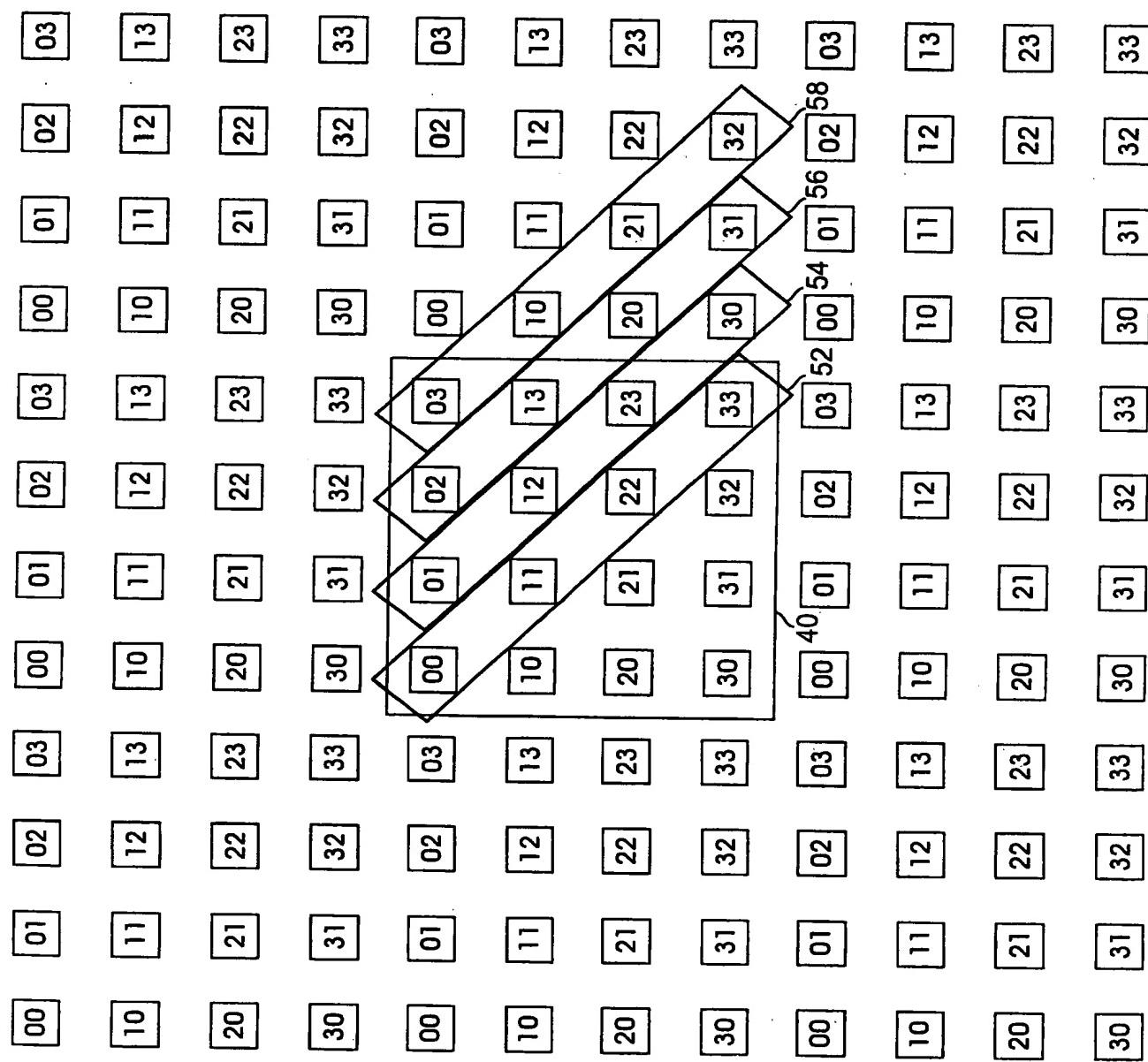


FIG. 5C

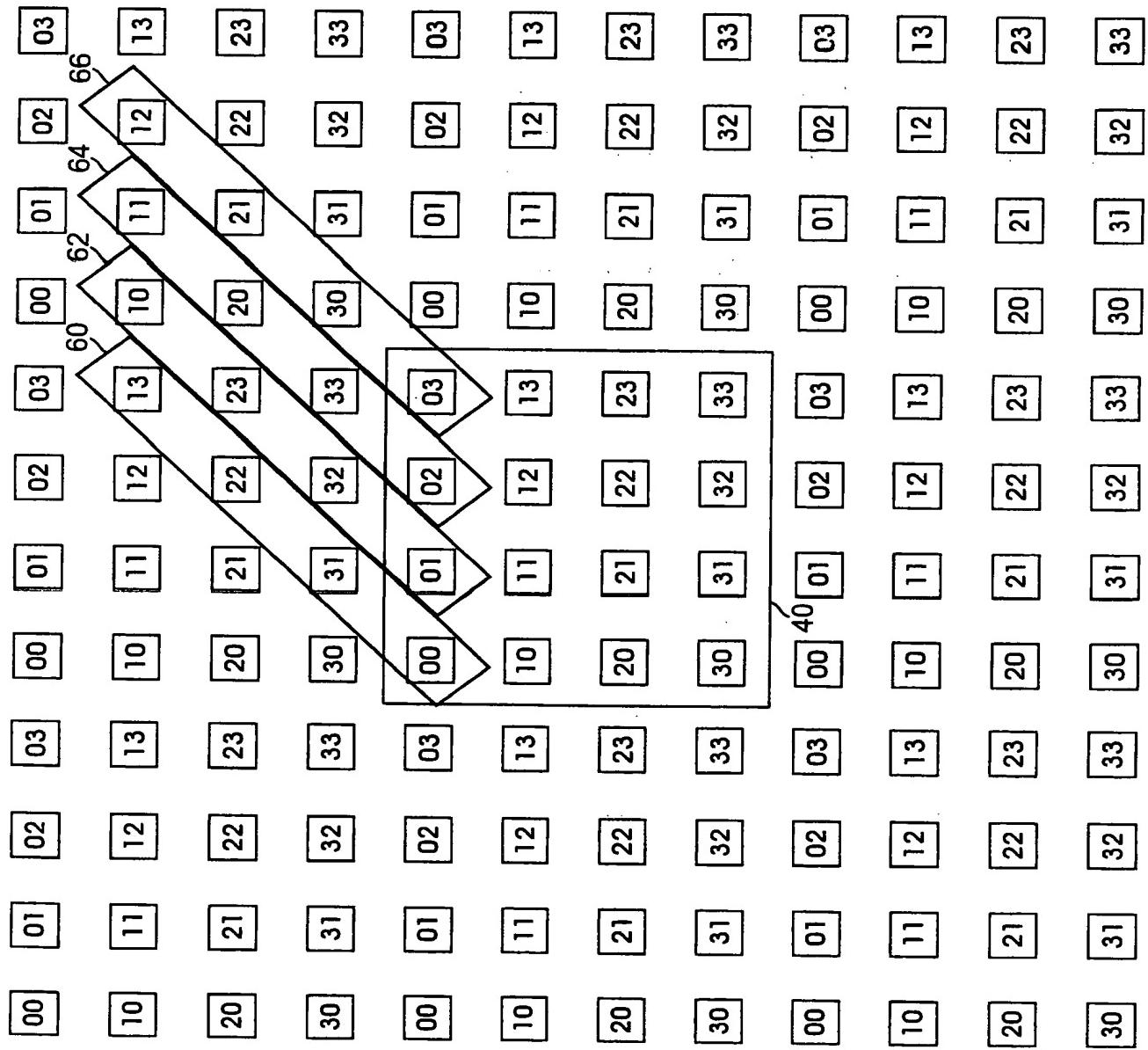


FIG. 5D

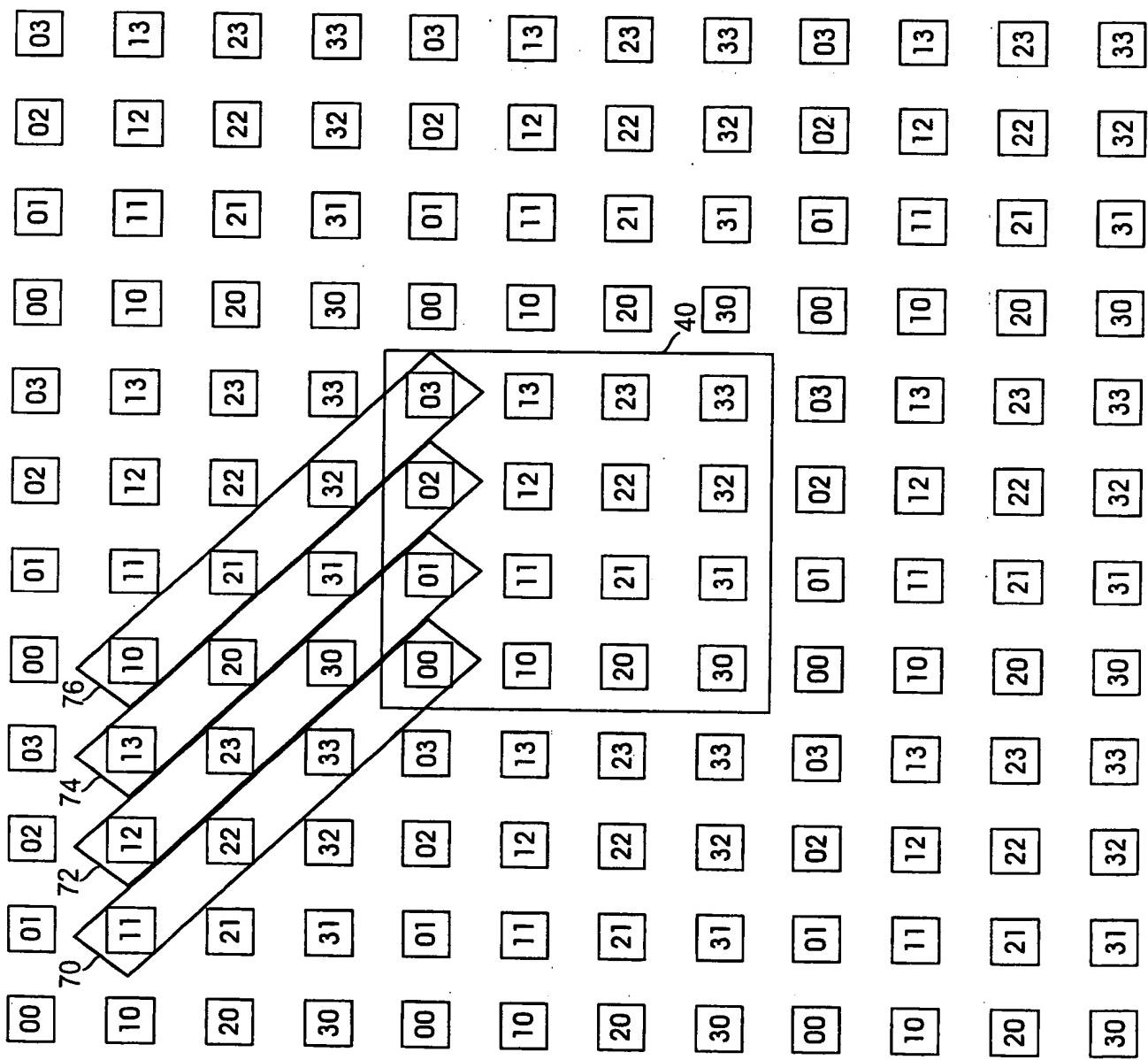


FIG. 5E

00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33
00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33
00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33
00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33
00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33
00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33

FIG. 5F

00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33
00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33
00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33
00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33
00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33
00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33

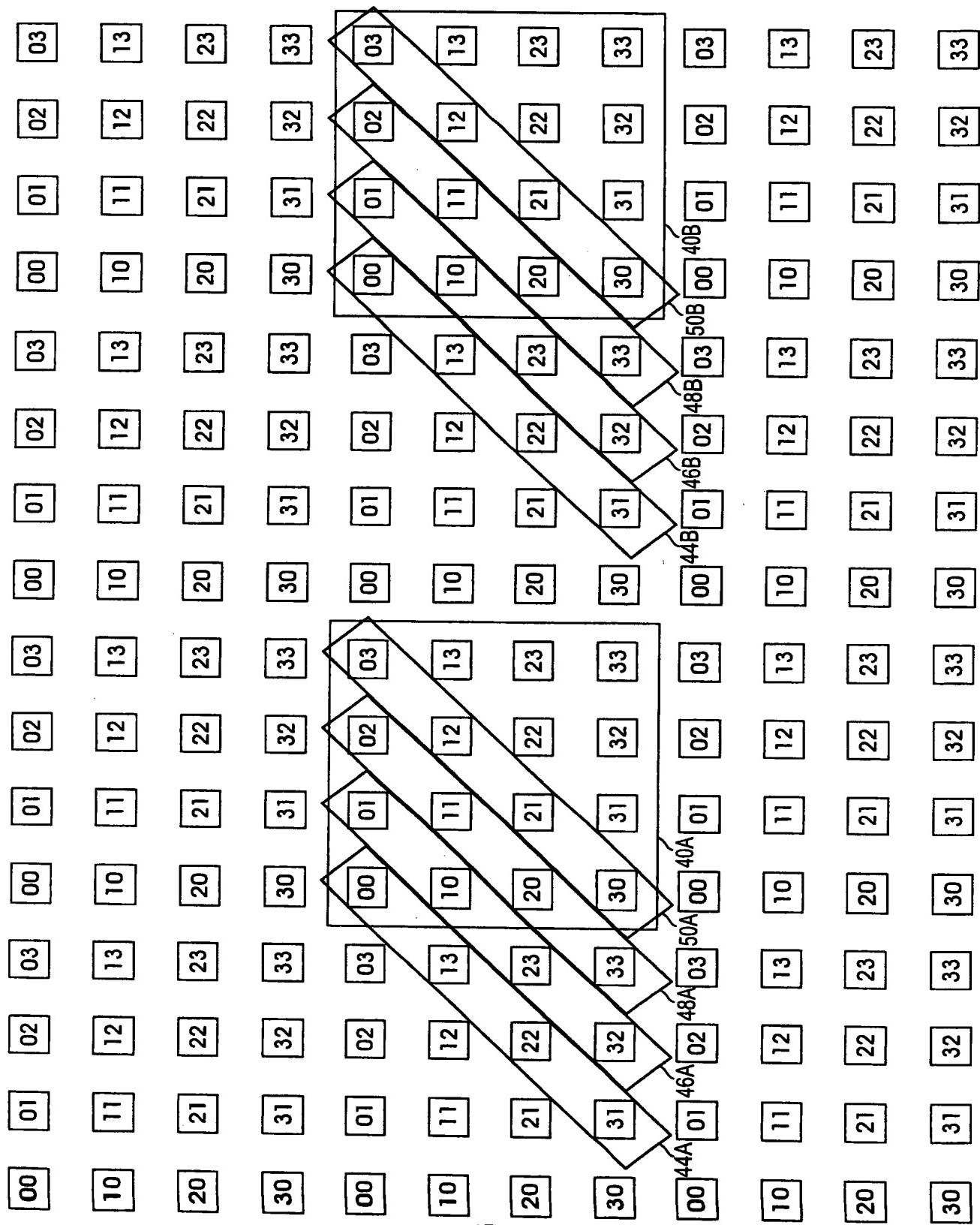


FIG. 5G

FIG. 6

00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33
00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33
00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33
00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33
00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33
00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33
00	01	02	03	00	01	02	03
10	11	12	13	10	11	12	13
20	21	22	23	20	21	22	23
30	31	32	33	30	31	32	33

00	01	02	00	01	02	00	01	02
10	11	12	10	11	12	10	11	12
20	21	22	20	21	22	20	21	22
00	01	02	00	01	02	00	01	02
10	11	12	10	11	12	10	11	12
20	21	22	20	21	22	20	21	22
00	01	02	00	01	02	00	01	02
10	11	12	10	11	12	10	11	12
20	21	22	20	21	22	20	21	22

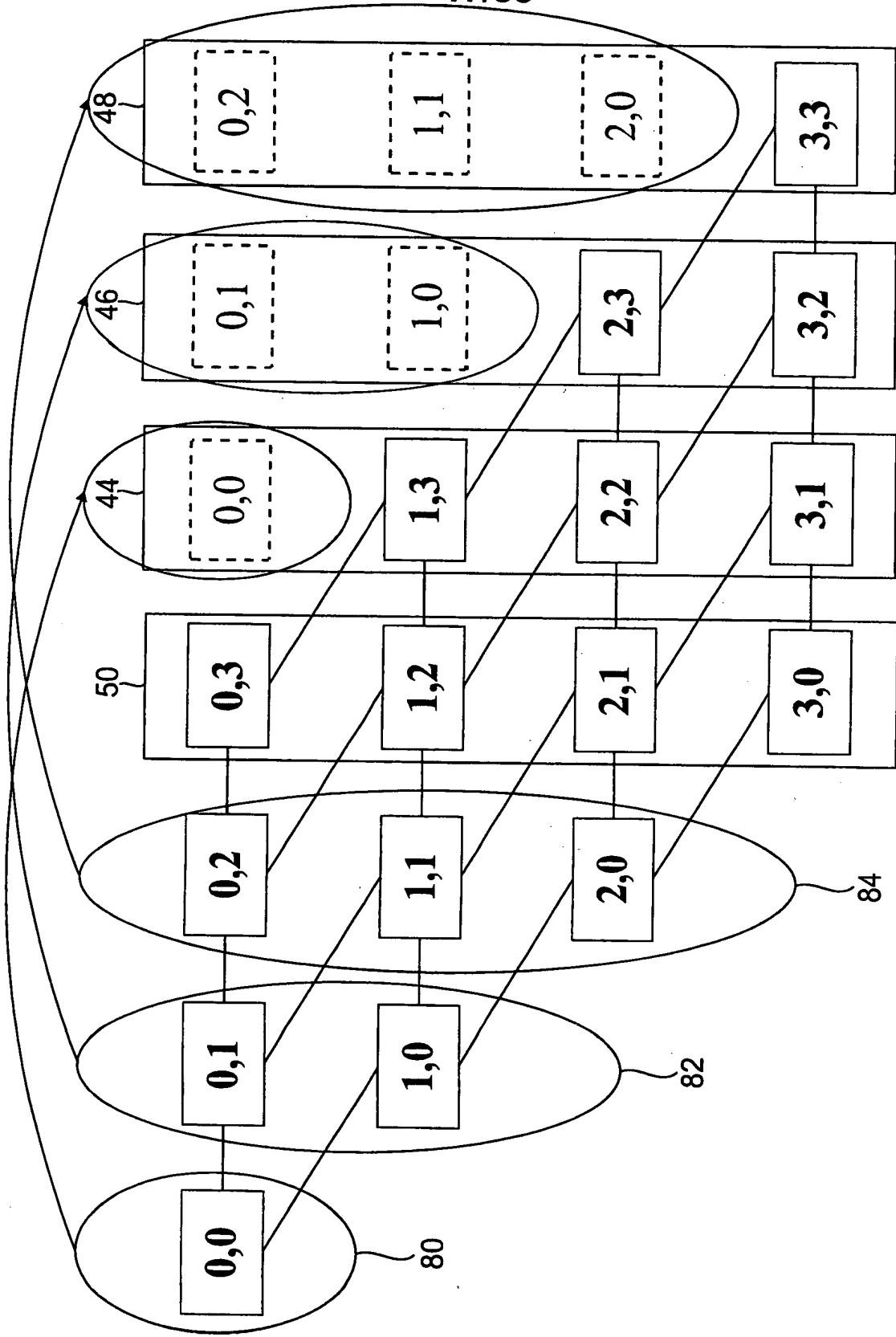
FIG. 7

00	01	02	03	04	00	01	02	03	04	00	01	02	03	04
10	11	12	13	14	10	11	12	13	14	10	11	12	13	14
20	21	22	23	24	20	21	22	23	24	20	21	22	23	24
00	01	02	03	04	00	01	02	03	04	00	01	02	03	04
10	11	12	13	14	10	11	12	13	14	10	11	12	13	14
20	21	22	23	24	20	21	22	23	24	20	21	22	23	24
00	01	02	03	04	00	01	02	03	04	00	01	02	03	04
10	11	12	13	14	10	11	12	13	14	10	11	12	13	14
20	21	22	23	24	20	21	22	23	24	20	21	22	23	24
00	01	02	03	04	00	01	02	03	04	00	01	02	03	04
10	11	12	13	14	10	11	12	13	14	10	11	12	13	14
20	21	22	23	24	20	21	22	23	24	20	21	22	23	24

FIG. 8

FIG. 9

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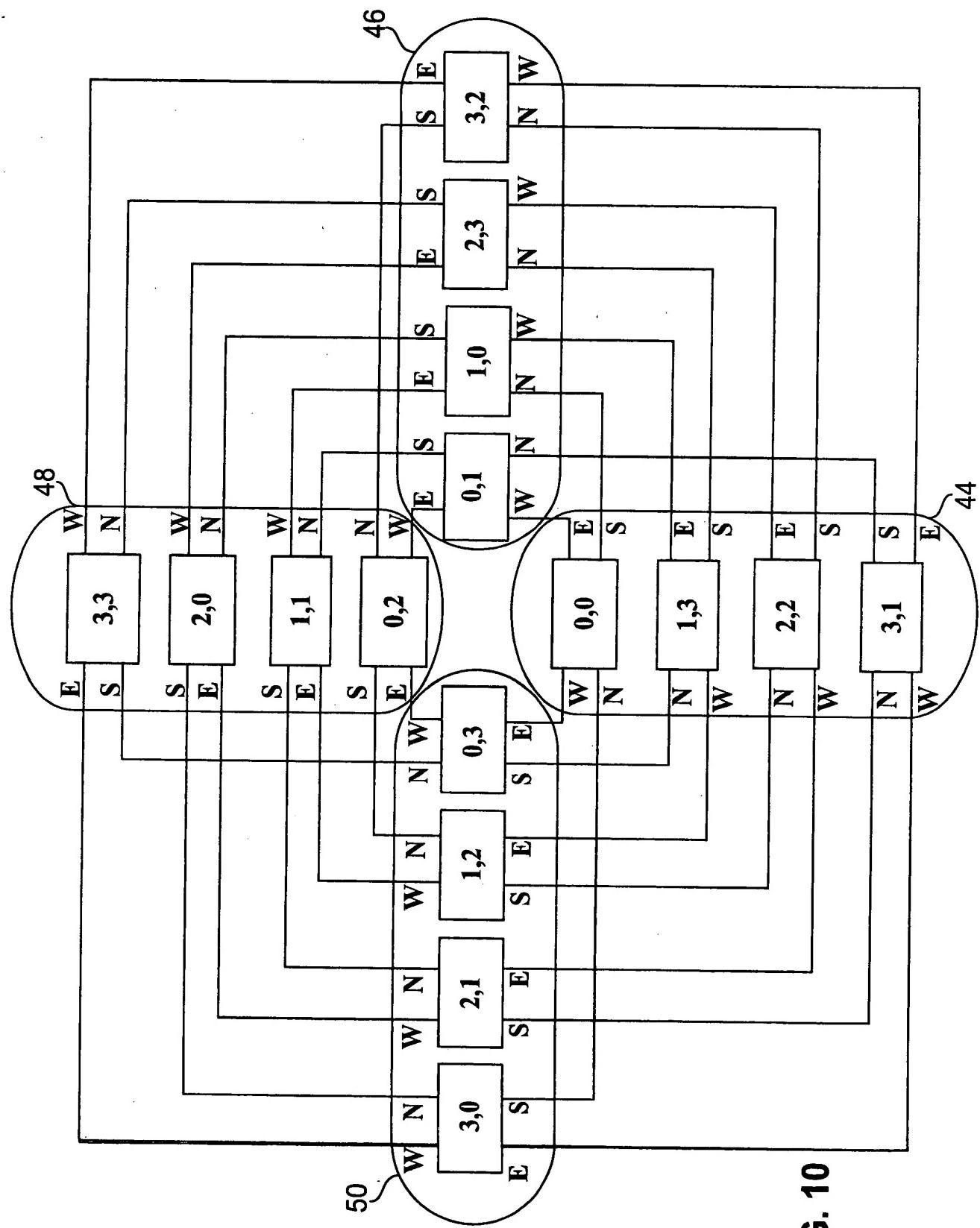


FIG. 10

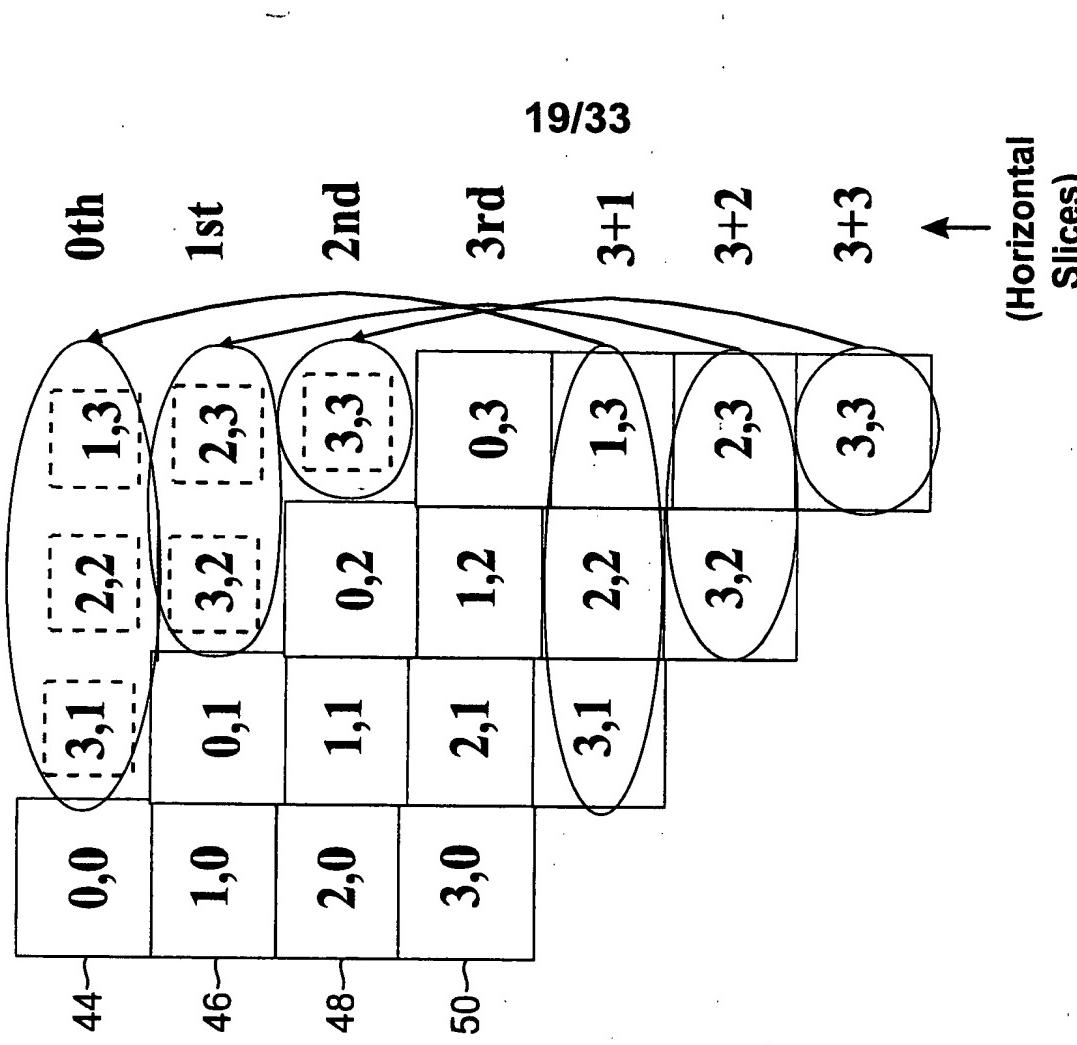
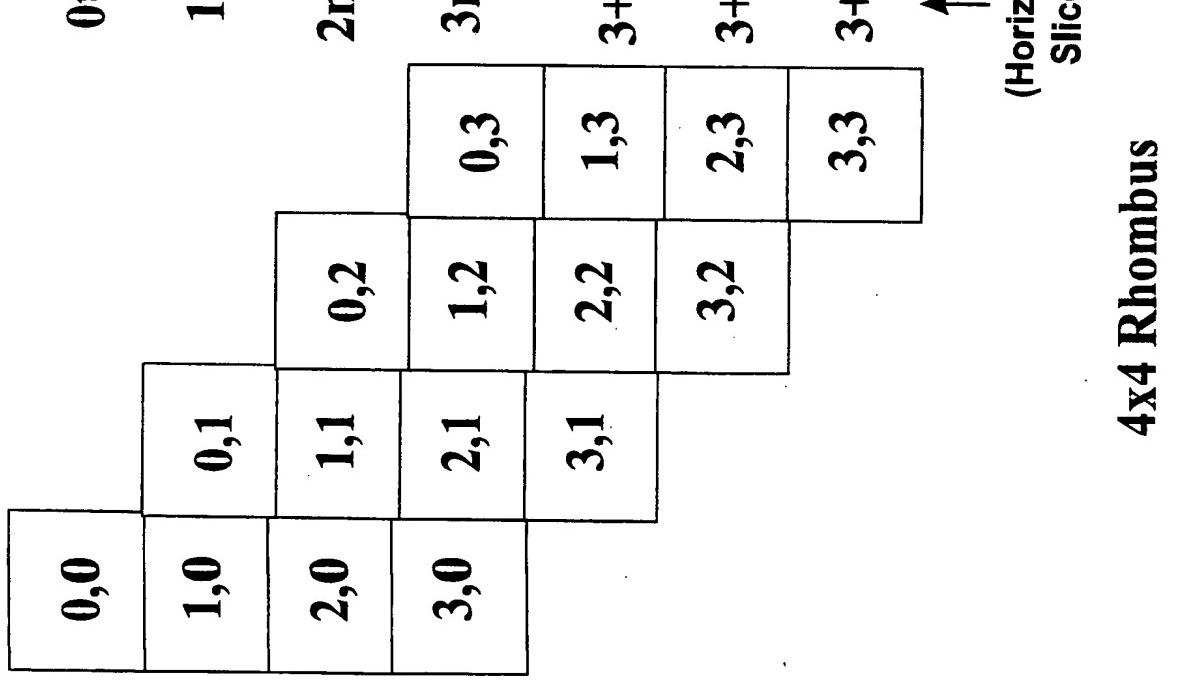


FIG.11A

FIG.11B

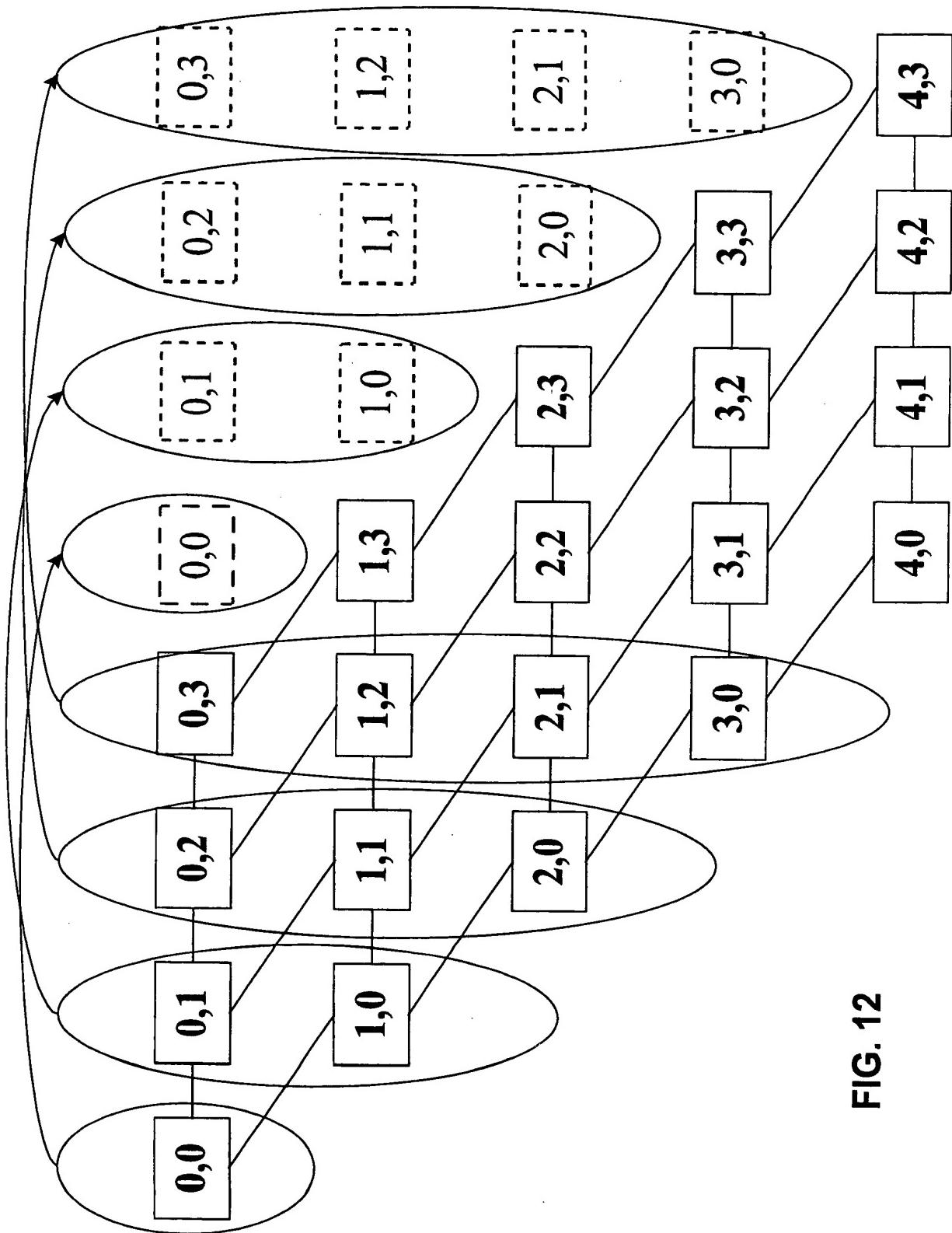


FIG. 12

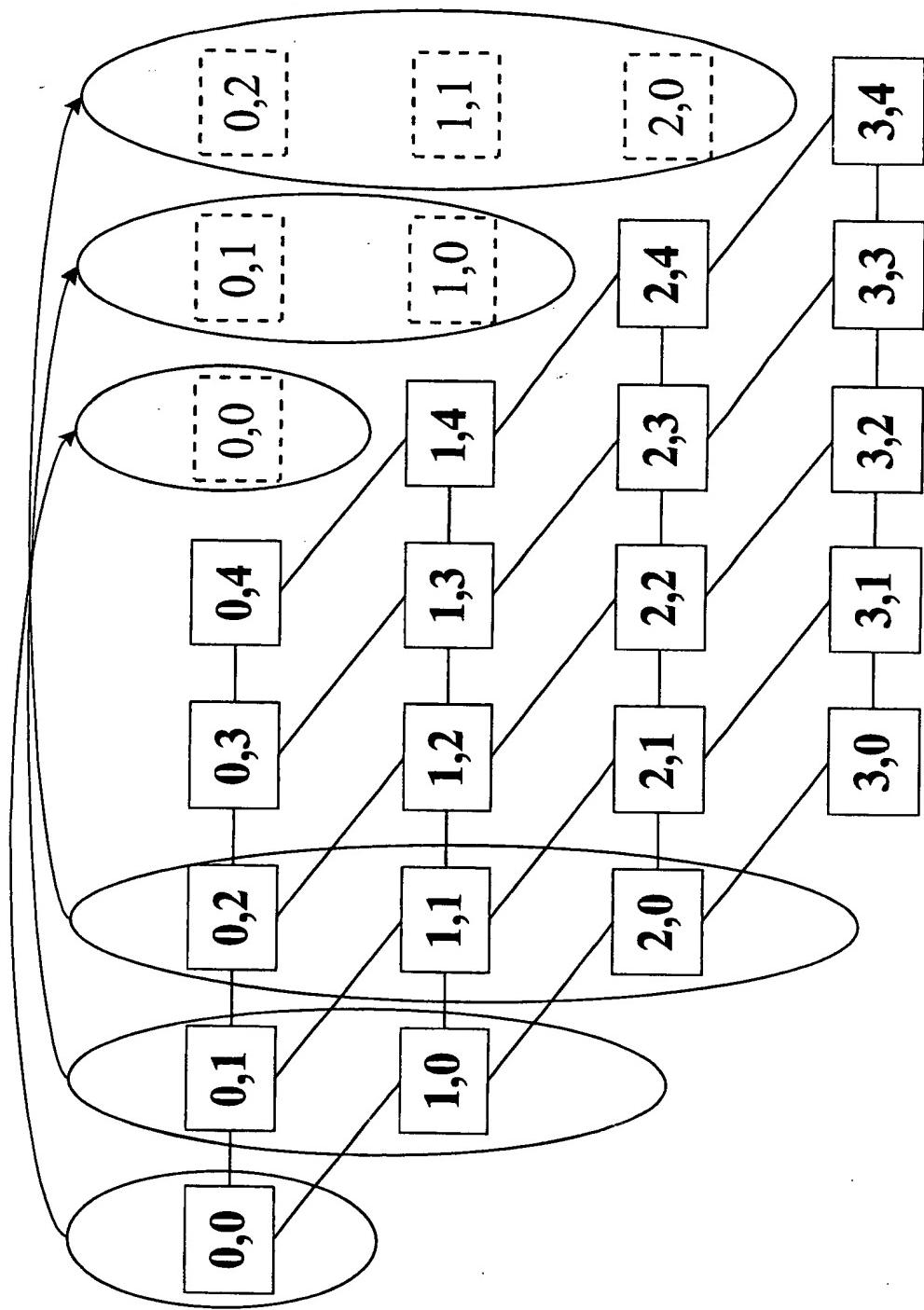


FIG. 13

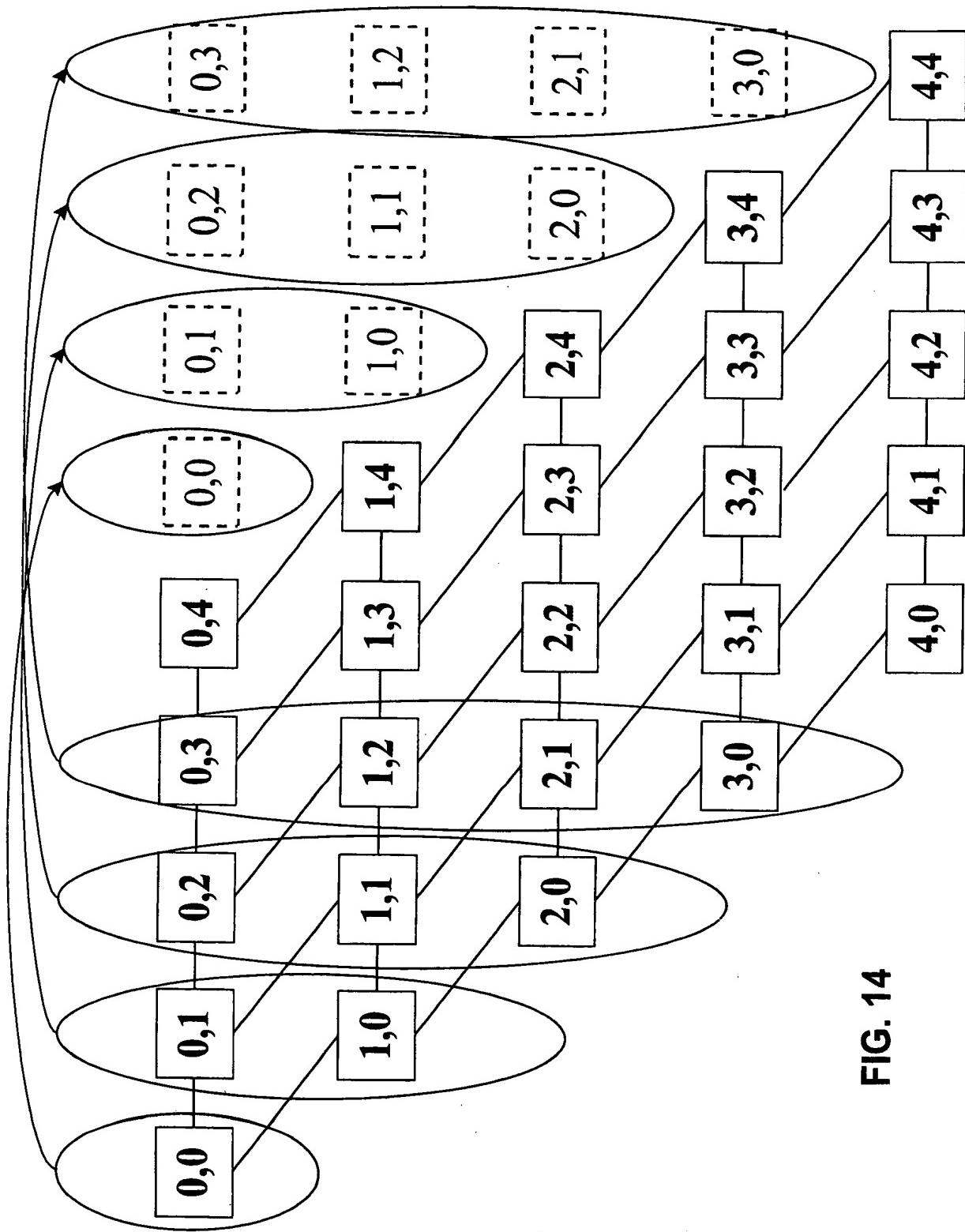


FIG. 14

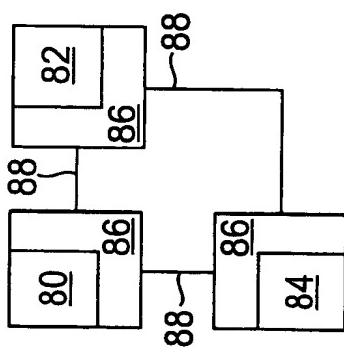


FIG. 15A

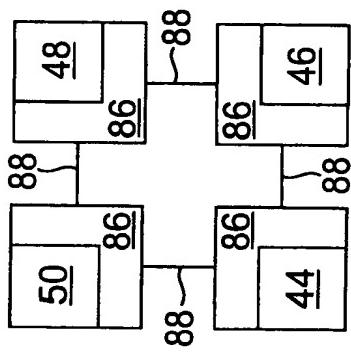


FIG. 15B

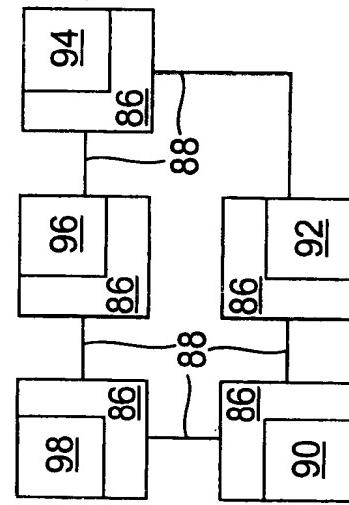


FIG. 15C

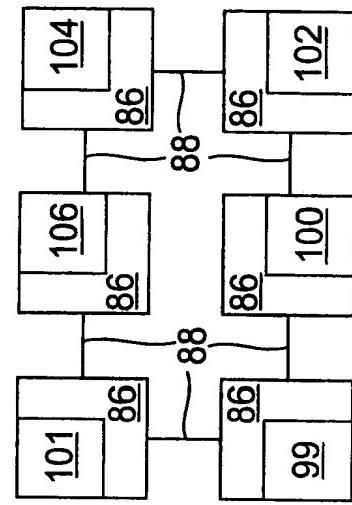
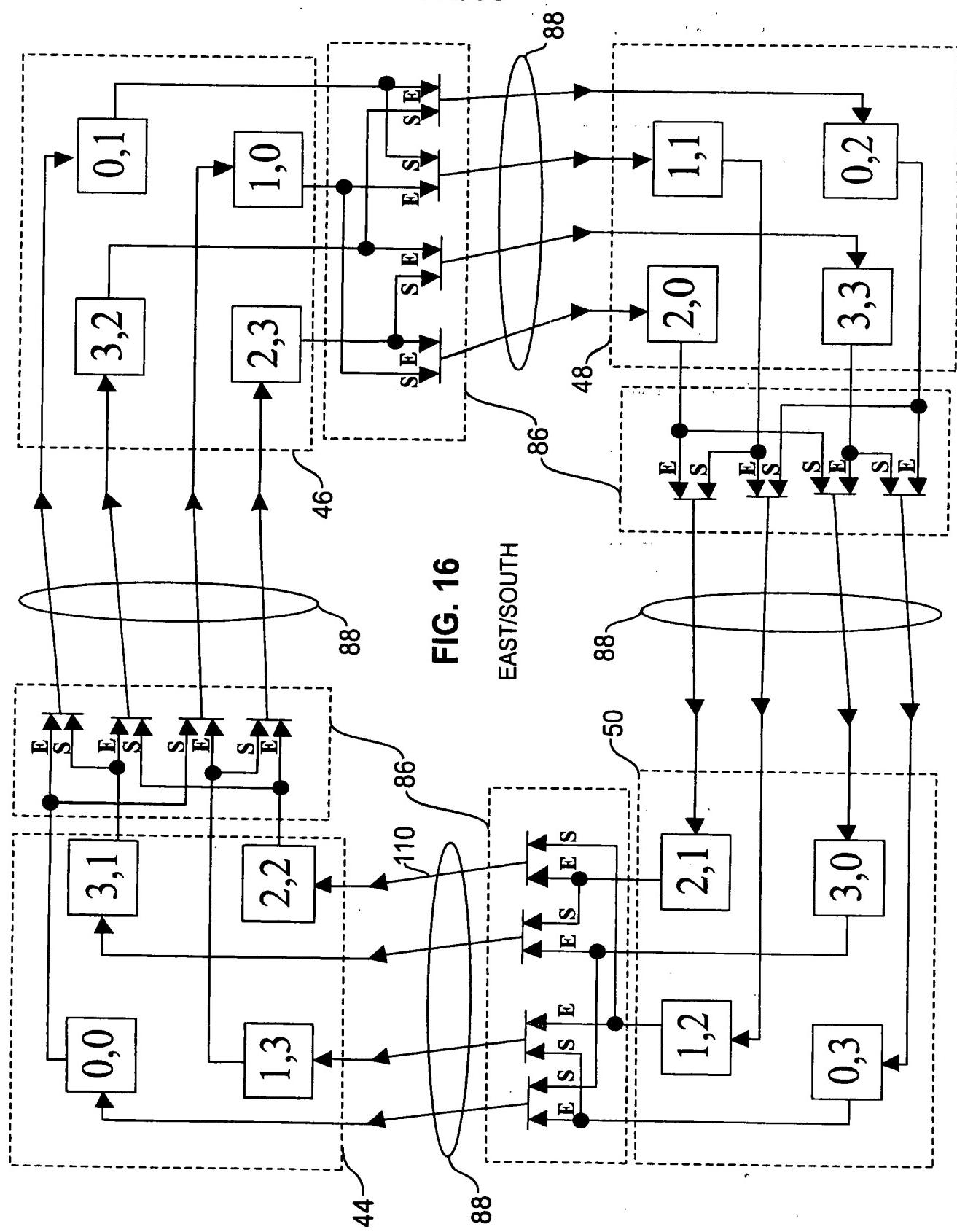
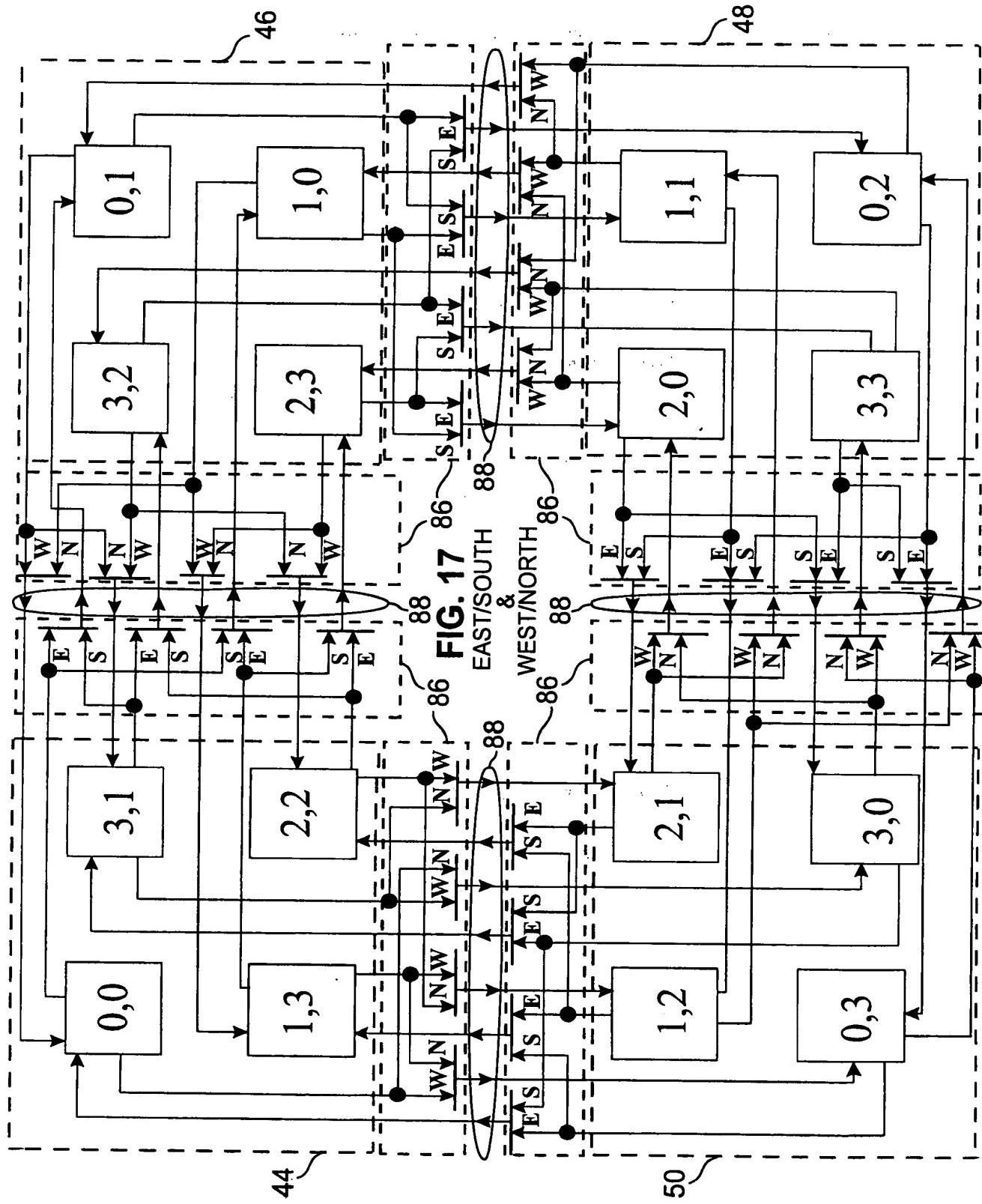


FIG. 15D





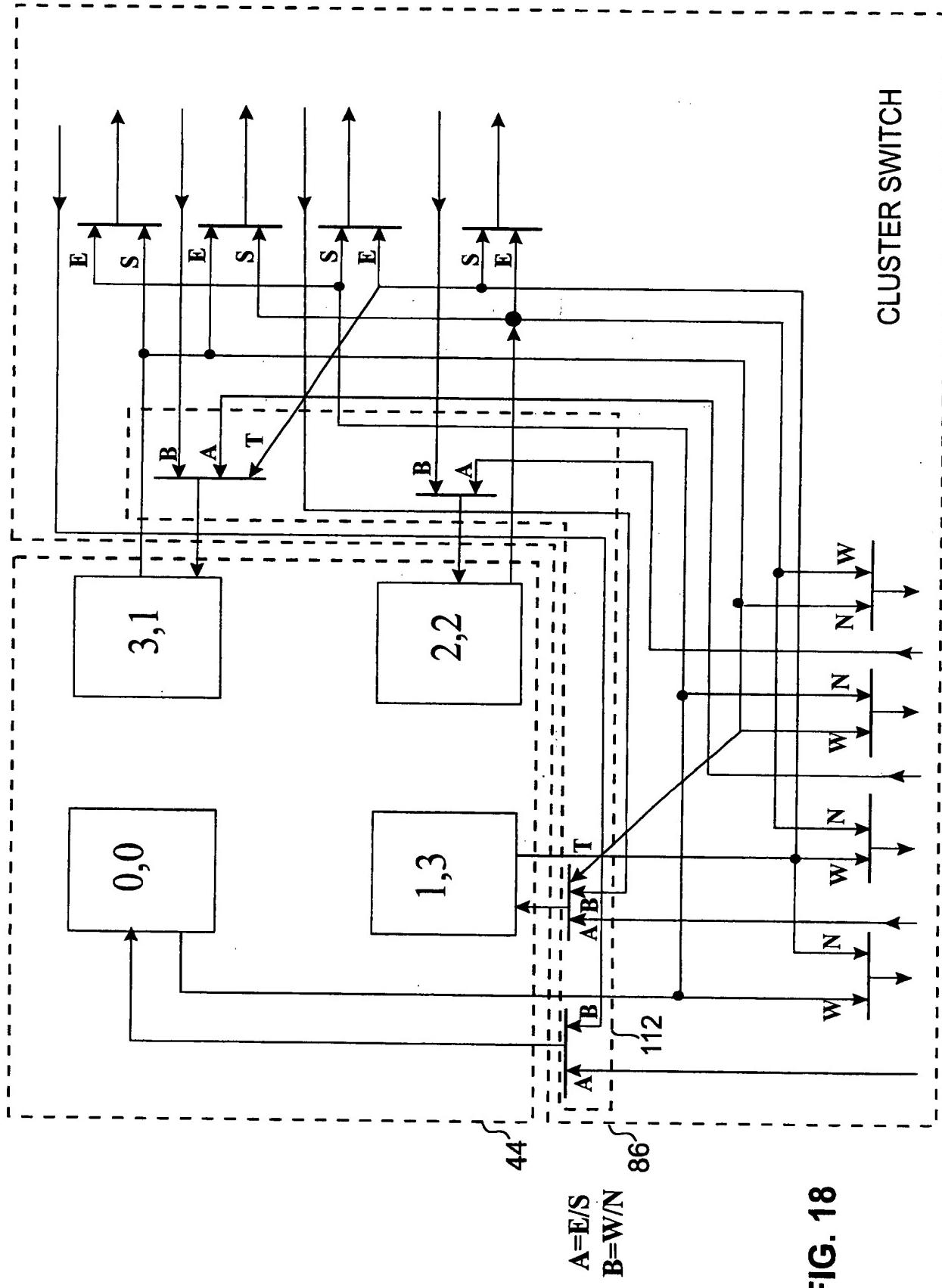
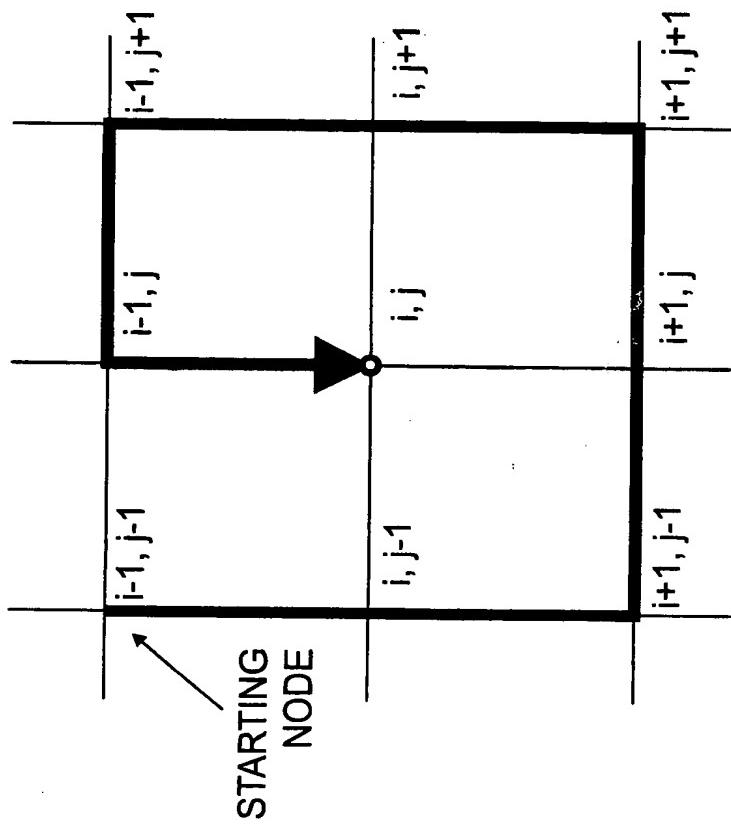


FIG. 18

W_{0,0} W_{0,1} W_{0,2}
 W_{1,0} W_{1,1} W_{1,2}
 W_{2,0} W_{2,1} W_{2,2}

CONVOLUTION WINDOW

FIG. 19A



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CONVOLUTION PATH FOR NODE i, j

FIG. 19B

	P0,0	P0,1	P0,2	P0,3	P0,4	P0,5	P0,6	P0,7
P1,0								
P2,0								
P3,0								
P4,0								
P5,0								
P6,0								
P7,0								

FIG. 19C

FIG. 19D

0,0	0,1	0,2	0,3
P4,4	P4,5	P4,6	P4,7
1,0	1,1	1,2	1,3
P5,4	P5,5	P5,6	P5,7
2,0	2,1	2,2	2,3
P6,4	P6,5	P6,6	P6,7
3,0	3,1	3,2	3,3
P7,4	P7,5	P7,6	P7,7

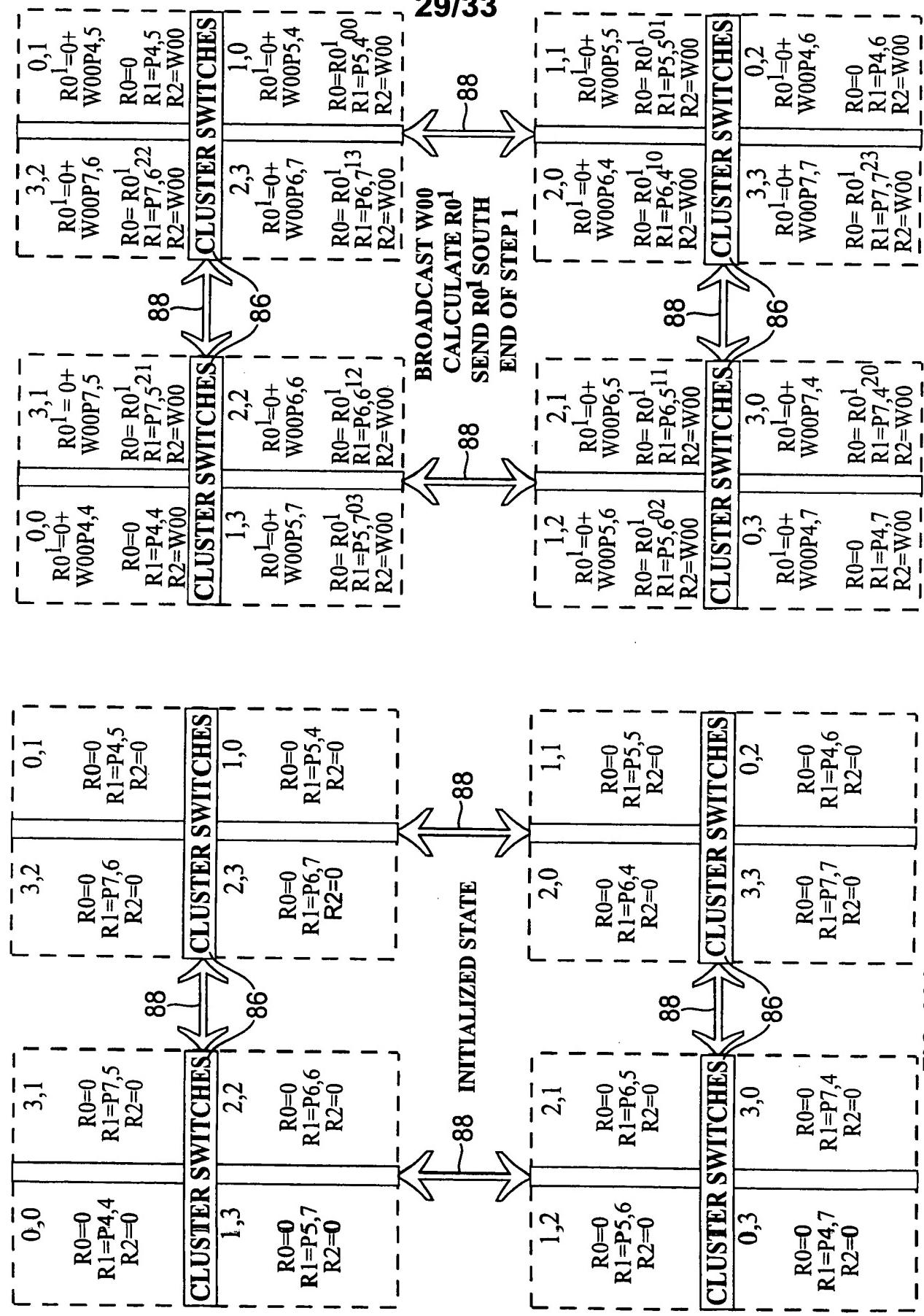
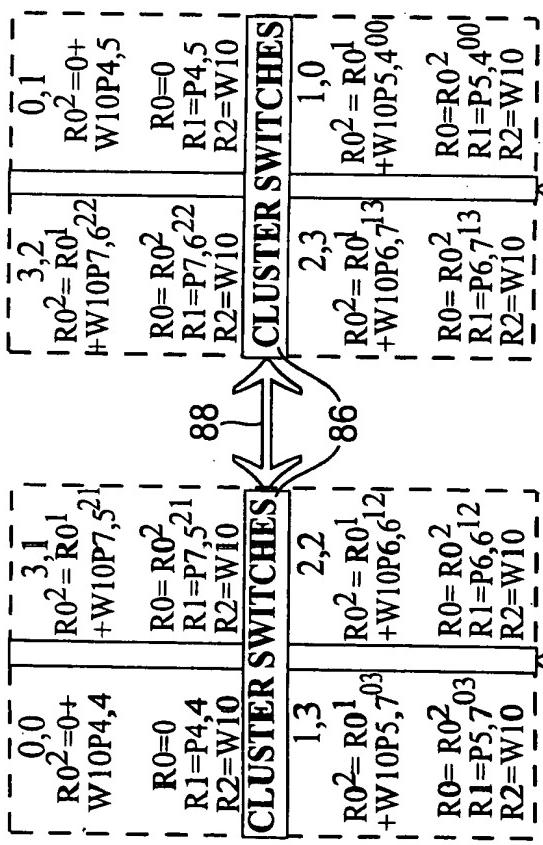


FIG. 20A

FIG. 20B



BROADCAST W10
CALCULATE $R0^2$
SEND $R0^2$ SOUTH
END OF STEP 2

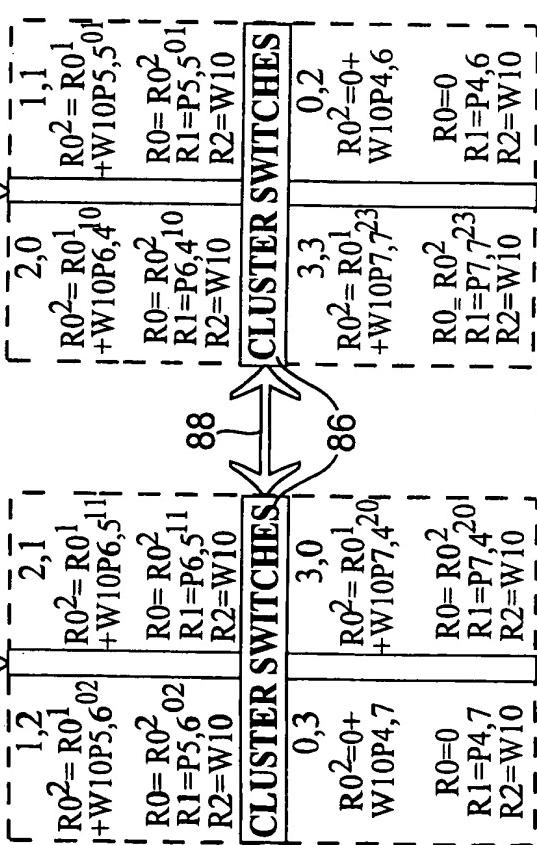
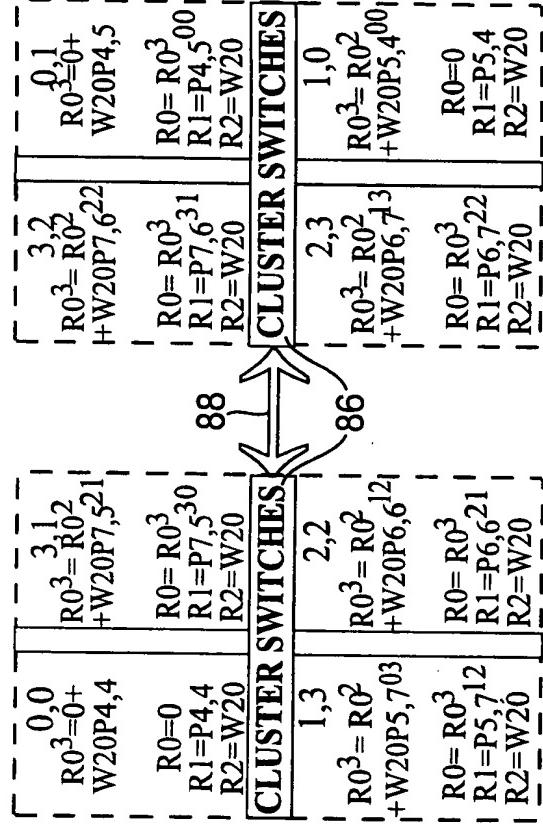


FIG. 21A



BROADCAST W20
CALCULATE $R0^3$
SEND $R0^3$ EAST
END OF STEP 3

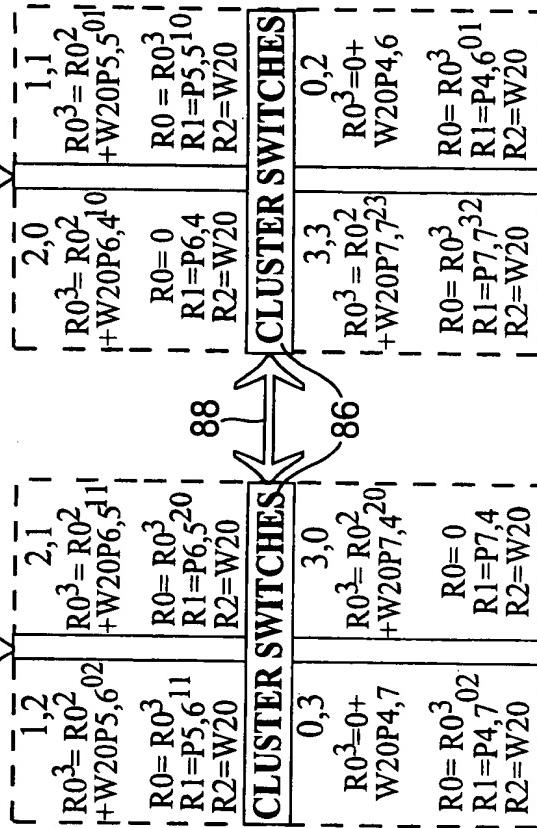


FIG. 21B

BROADCAST W20
CALCULATE $R0^3$
SEND $R0^3$ EAST
END OF STEP 3

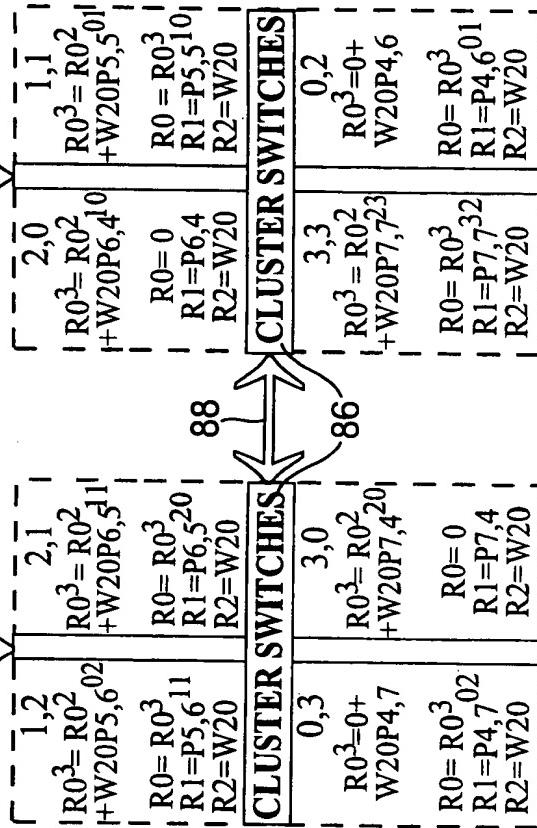


FIG. 21A

BROADCAST W20
CALCULATE $R0^3$
SEND $R0^3$ EAST
END OF STEP 3

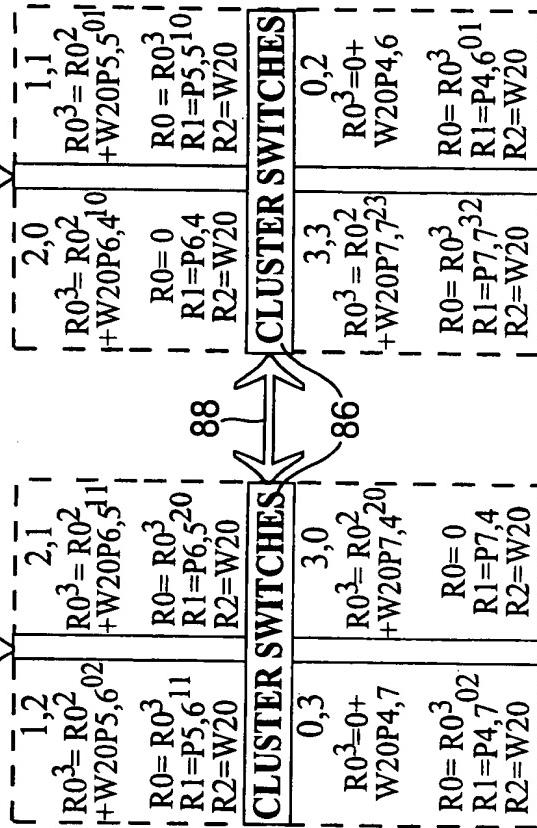
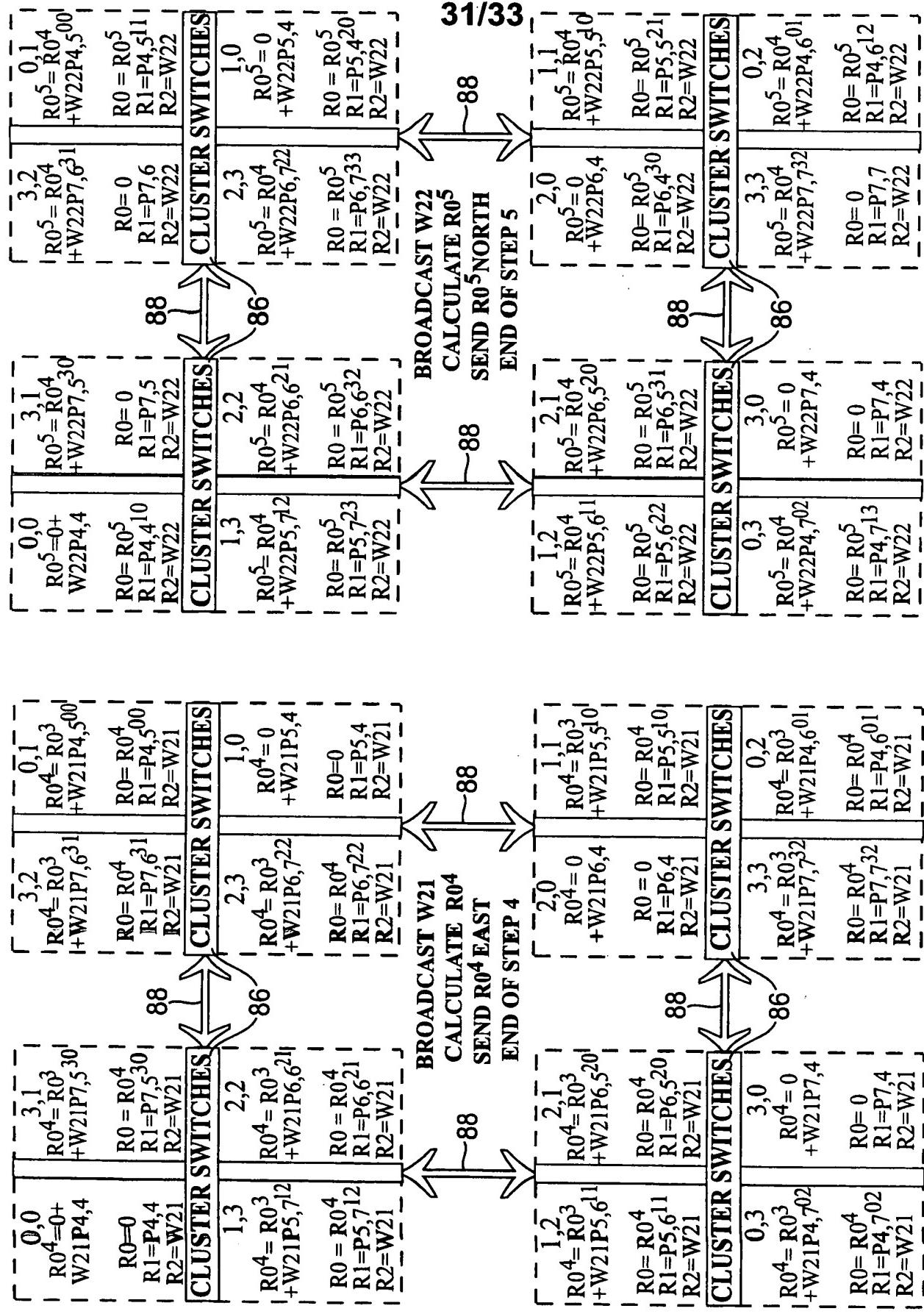


FIG. 21B

BROADCAST W20
CALCULATE $R0^3$
SEND $R0^3$ EAST
END OF STEP 3



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BROADCAST W22
CALCULATE R0⁵
SEND R0⁵ NORTH
END OF STEP 5

BROADCAST W21
CALCULATE R0⁴
SEND R0⁴ EAST
END OF STEP 4

BROADCAST W21
CALCULATE R0⁴
SEND R0⁴ EAST
END OF STEP 4

BROADCAST W21
CALCULATE R0⁴
SEND R0⁴ EAST
END OF STEP 4

BROADCAST W21
CALCULATE R0⁴
SEND R0⁴ EAST
END OF STEP 4

BROADCAST W21
CALCULATE R0⁴
SEND R0⁴ EAST
END OF STEP 4

BROADCAST W21
CALCULATE R0⁴
SEND R0⁴ EAST
END OF STEP 4

FIG. 22B

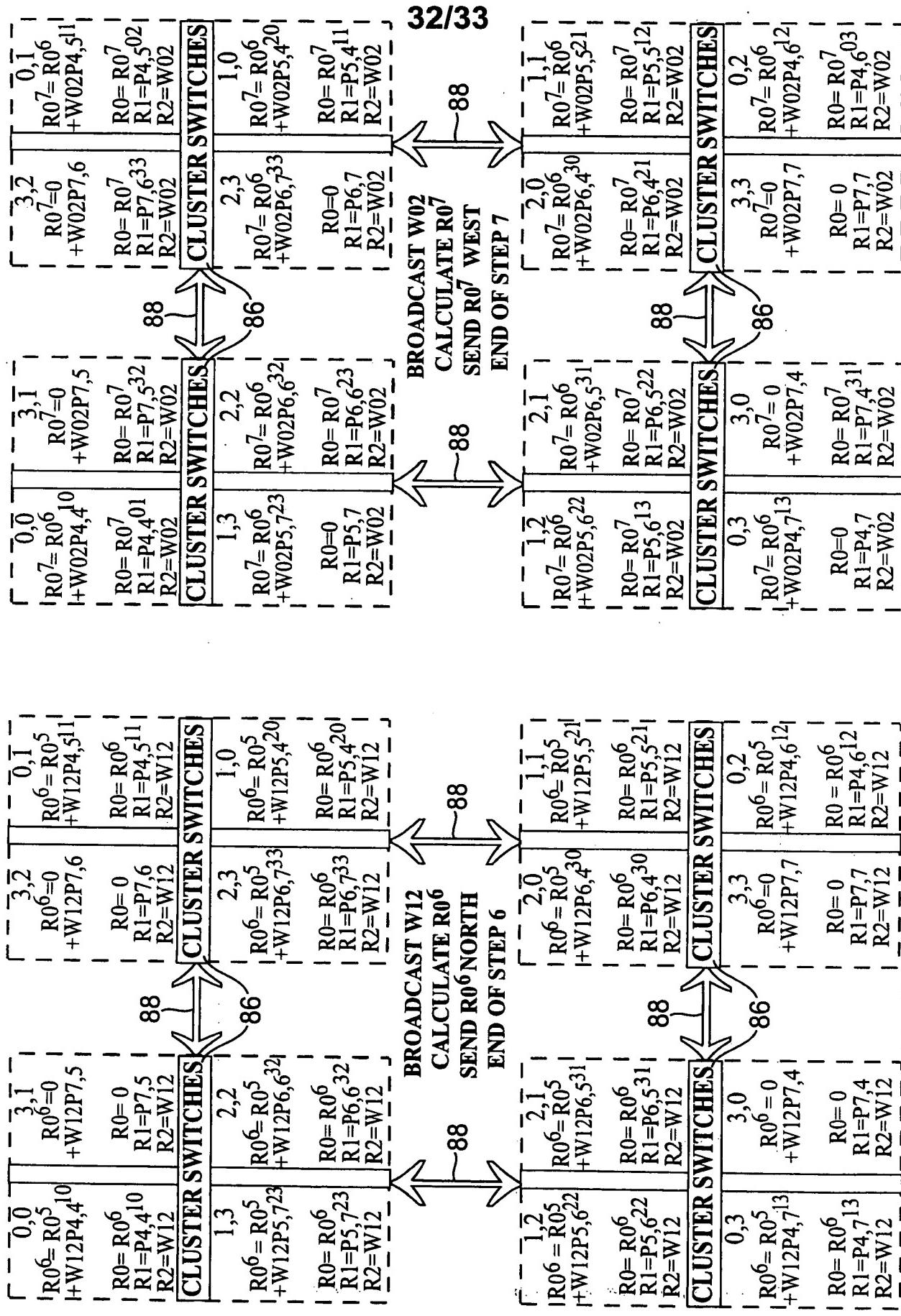


FIG. 23B

